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ABSTRACT

Focusing on one aspect of a study examining the child-staff ratio in California state-subsidized day care centers, this paper explores the relationship between indicators of quality and the behavior of children in day care centers. In fall 1990, trained observers spent a week in 122 day care classrooms throughout California. During this time they rated teachers and aides, counted students, recorded interactions and activities, and coded children's behavior for 4 consecutive mornings. Two months later classrooms were randomly assigned a child-staff ratio configuration that they would be required to achieve and maintain for the spring session. One-third of the classrooms were asked to increase their ratio to 9:1; one-third to increase to a 10:1 ratio; and the final third to maintain an 8:1 ratio. Two months after the ratio change, observers returned and repeated the same observations in 112 classrooms. This paper presents findings from the spring data collection only. Analysis revealed that two aspects of child behavior were most consistently reflective of program quality: indicators of stress and other negative behaviors (crying and fighting); and percentage of time children were uninvolved in classroom activities. Classroom dynamics (including caregiver behavior) showed stronger relationships with children's behavior than did structural variables. (MM)

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DOES CHILDREN'S BEHAVIOR REFLECT DAY CARE CLASSROOM QUALITY?[1]

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We often try to justify programs and services in early childhood education and care in terms of their long-term benefits--enhanced school achievement, reduced assignment to special education classes, and increased rates of high school graduation, for example. But with approximately 9.5 million children younger than 5 years having mothers employed outside the home (U.S. Bureau of the Census 1990), and roughly 4.5 million children under the age of 5 in child care centers or regulated family child care arrangements (Kisker, Hofferth, Phillips, & Farquhar 1991), it is at least equally important to know how day care affects children *while* they are enrolled. Furthermore, children's behavior at the center is important because this time represents a major portion of the day for many children and because children's behavior may affect the job satisfaction and burn-out of their caregivers.

There is growing concern about the quality of child care. Since good quality care costs more than poor quality (Willer, 1990), we as professionals are often called upon to justify the expenditures needed to ensure higher levels of quality. And with good reason. By all accounts, including recent surveys of center and family child care (Kisker et al. 1991) and the personal experiences of career women like Zoe Baird, the current supply is woefully inadequate to meet the needs of American families. If scarce resources are needed to provide more child care, and if we *can't* demonstrate the importance of higher levels of quality, then we should be advocating that resources be devoted to serving more children than to enhancing quality.

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Context of the Present Study

The data I'm describing today come from a study done in California, where the state currently requires that programs for 4-year-olds maintain a child-adult ratio of 8:1. In 1989, some legislators raised the concern that taxpayer dollars were financing "Cadillac care" whereas more people could ride if the same dollars purchased Chevrolets. To address the quality-quantity tradeoff, the California legislature asked the state department of education to commission a study to see whether altering one of the most common regulatable standards--child-staff ratio--would affect the quality of care received by children in their publicly funded child development programs. Although child-staff ratio is sometimes considered a proxy measure of program quality, in this study we were interested in ratio as the independent variable, and our purpose was to see how increasing that ratio would affect quality as measured in a variety of ways (Love, Ryer, & Faddis 1992).

Because of the variety of indices of quality obtained, we were also able to learn about the relationships among them. Thus, in addition to contributing to the literature on child-staff ratio, this study adds to our understanding of the correlates of quality itself. The present paper focuses on that one aspect of the study--the relationships between indicators of quality and the behavior of children in the centers.

Description of the Sample

This study is also important because the vast majority of the children enrolled in the centers we observed were receiving subsidized care. In other words, the State of California reimbursed the centers for all or part of the costs for most of the enrolled children. (On average, only about one and one-half children in each classroom paid full fee.) Ninety-four percent of the children were 3 and 4 years old, and the children represented diverse racial/ethnic backgrounds. About 37 percent of the children in these classrooms were African American, 32 percent were Hispanic, almost 20 percent were White, and 13 percent were Asian. One-quarter were identified as limited-English

proficient, 2 percent were handicapped, and 4 percent were receiving protective services. Thus, there was considerable diversity in the children enrolled in these classrooms.

Staff in these classrooms were relatively well trained, with 43 percent of teachers and head teachers having a bachelor's degree and an additional 37 percent having a two-year degree. Considering teachers and aides together, slightly less than half had education beyond high school. All classroom staff had at least some training or coursework in early childhood education, child development, or related fields. About 17 percent had bachelor's or advanced degrees in early childhood education, and about one-fifth had their Child Development Associate (CDA) certification. This was an experienced staff: They had an average of 10 years of previous experience as providers in early childhood programs.

Methodology

I won't take time now to go into the methodology (you can ask questions later or request a copy of the full technical report on the study), but let me summarize the design. In fall 1990 we trained observers to spend a week in each of 122 classrooms throughout the state. The observers rated teachers and aides, counted children, recorded interactions and activities, and coded children's behavior for four consecutive mornings--a more thorough data collection than the typical study's half day of observation. A couple of months later we randomly assigned classrooms to a child-staff ratio configuration that they would be required to achieve and maintain for the spring. One-third of the classrooms were asked to increase their ratio to 9:1; one-third went to 10:1; and the other third were told they could maintain their 8:1 ratio. After giving the centers a couple of months to adjust, our observers went back and repeated the same observations--this time, due to attrition, in 112 classrooms. The findings I'm discussing today are from the spring data collection only.

Instruments

We selected six observational instruments to provide data on classroom structure, classroom dynamics, caregiver behavior, and children's behavior. The first two overheads summarize the program quality dimensions assessed by each instrument. They include measures of classroom structure, such as class size; classroom dynamics, such as caregiver-child interactions; and ratings of caregiver behavior or style, such as being attentive and encouraging, as obtained by the Arnett scale. The next overhead lists the child behavior measures. The stress instrument, developed by Diane Burts and her colleagues at LSU (Burts, Hart, Charlesworth, and Kirk 1990), is based on observer coding of specific behaviors seen in repeated brief samples of time taken throughout the week on all children in the classroom. The behavior problems on the Behavior Problems Index were rated by the children's teachers and aggregated to give the average levels of behavior problems for all the children in each classroom. Because of the short timeframe of the ratio change, we decided not to assess children's cognitive development.

Findings

I'm reporting findings based on two sets of analyses on the spring observation data. The first focuses on the effects of ratio, using multiple regression to examine the relationship between the observed child-staff ratio (obtained from the Classroom Snapshot) and the various measures of quality. (The N for these analyses is 112 classrooms, which ranged in observed ratio from 5.6:1 to 18:1). Observed ratio was a significant predictor *only* of the percentage of activities in which there were children not involved--the higher the ratio, the more likely it was that children were uninvolved (Beta = .267, R-square = .145).

The second analysis strategy used correlation coefficients to examine the relationships among the indices of children's behavior (listed in overhead 3) and the measures of program quality. (Because of the large number of intercorrelations examined, we considered a relationship to be

meaningful only if the correlation was both statistically significant and greater than .30.)

The next three overheads list the program quality dimensions that were meaningfully associated with aspects of children's behavior that we measured in this study. Structural variables had slight effect, but classroom dynamics appear to be important in a number of ways. When classrooms were more developmentally appropriate, children spent less time uninvolved and exhibited lower levels of stress behavior. The developmentally *in*appropriate practices dimension, however, has a stronger relationship with children's behavior than does developmentally appropriate practice, especially with respect to the stress behaviors, which appeared at a higher rate in classrooms with higher ratings on developmentally inappropriate practices.

Several dimensions of the Assessment Profile related to children's behavior. Classrooms with higher scores on "curriculum" are characterized by having curriculum materials that support a variety of learning experiences, and children are encouraged to be active in guiding their own learning. These are also features of developmentally appropriate practice. Children in classrooms with higher curriculum ratings show less crying and fighting, are less likely to be uninvolved in classroom activities, and show lower levels of stress behavior. Other dimensions of the Assessment Profile show similar relationships--We found lower levels of negative behaviors when there are more positive teacher interactions, when there is a supportive learning environment, and teacher interactions with children are more individualized.

Using the Arnett scale, we also had direct ratings of caregiver style. The central finding here is that there was *less* child stress when caregivers were attentive and encouraging, but *more* stress when caregivers were harsh and critical and detached. Detachment on the part of caregivers also is associated with children being more uninvolved in classroom activities.

Children's problem behaviors as rated by the classroom caregivers were not associated with any aspects of classroom structure, dynamics, or caregiver behavior. This may be because the

behaviors we asked caregivers to rate tended to be fairly extreme indicators, such as depression, which may be less susceptible to influence by the range in quality variation that we found in these classrooms.

Conclusions

Two aspects of child behavior were most consistently reflective of program quality as observed in these classrooms:

1. Indicators of stress and other negative behaviors (crying and fighting)
2. Percentage of time children were uninvolved in classroom activities

Classroom dynamics (such as various dimensions of developmentally appropriate or inappropriate practice), which might also be considered to include caregiver behavior, showed stronger relationships with children's behavior than structural variables. This is not surprising, even though it is the structural features of classrooms, including class size and child-staff ratio, that are the basis of most licensing standards and regulations. We did find evidence of a weak child-staff ratio effect--Children were observed to be more uninvolved in classroom activities when ratios were higher, that is, when there were more children per adult in the classroom. But, even though child-staff ratio did not itself enter into many significant relationships with children's behavior, the more subtle and difficult-to-regulate elements of quality may be very important in reducing levels of negative child behaviors, including stress, crying and fighting and being uninvolved in classroom activities.

It is also important to remember the contextual features of these classroom settings. These finding appeared even though the general level of quality of these classrooms was fairly high, as far as I can tell from looking at other research findings with some of the measures we used. The classroom staff were experienced and well-trained, and the structural features--child-staff ratios and class sizes--were well within recommended guidelines (Phillips, Scarr, & McCartney 1987).

In conclusion, I would like to stress three things:

- Developmentally appropriate practice makes a difference in children's lives *while* the children are in day care; we don't have to wait for kindergarten or first grade or later to find evidence to justify developmentally appropriate practices before school starts.

- The behavior of the caregivers is a critical ingredient of developmentally appropriate practice.

- Finally (and particularly important for relating research to practice), all of the aspects of classroom dynamics and caregiver behavior that we found to relate to children's behavior are modifiable--there is every reason we can do something about them through training, education, and staff development, and thereby positively affect children's experience in child care.

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OH #1
MEASURES OF PROGRAM QUALITY

Assessment Profile for Early Childhood Programs (Abbott-Shim & Sibley 1987)

- Safety and Health (24 Items)
- Learning Environment (18 Items)
- Scheduling (23 Items)
- Curriculum (28 Items)
- Individualizing (22 Items)
- Interacting (32 Items)

Arnett Scale of Caregiver Behavior (Arnett 1989)

- Attentive and Encouraging
- Harsh and Critical
- Detached
- Controlling

OH #2
MEASURES OF PROGRAM QUALITY
(Continued)

Preschool Classroom Snapshot (Abt Associates 1990)

- Observed Ratio and Class Size
- Size of Children's Groupings
- Classroom Activities
- Caregiver Comforting and Disciplining

Developmental Practices Inventory (Hyson, Hirsh-Pasek, & Rescorla 1990; Abt Associates 1990)

- Developmentally Appropriate Practices
- Developmentally Inappropriate Practices

OH#3
MEASURES OF CHILDREN'S BEHAVIOR

Preschool Classroom Snapshot (Abt Associates 1990)

- Crying
- Fighting
- Uninvolved

Child Stress Behavior Instrument (Burts, Hart, Charlesworth, & Kirk 1990)

- Stress Behaviors

Behavior Problems Index (Zill 1990)

- Anti-Social
- Depressed
- Attention Deficit
- Immature/Dependent

OH#4
QUALITY VARIABLES ASSOCIATED WITH ASPECTS OF CHILDREN'S BEHAVIOR

A. CLASSROOM STRUCTURE

Classroom Safety and Health

- Crying (-.33)
- Fighting (-.31)

B. CLASSROOM DYNAMICS

Developmental Appropriateness

- Uninvolved (-.36)
- Stress (-.38)

Developmental Inappropriateness

- Uninvolved (.33)
- Stress (.52)

OH#5
QUALITY VARIABLES ASSOCIATED WITH ASPECTS OF CHILDREN'S BEHAVIOR
(Continued)

B. CLASSROOM DYNAMICS (Continued)

Curriculum

- Crying (-.37)
- Fighting (-.30)
- Uninvolved (-.40)
- Stress (-.50)

Interacting

- Crying (-.37)
- Fighting (-.42)
- Uninvolved (-.45)
- Stress (-.49)

OH#6
QUALITY VARIABLES ASSOCIATED WITH ASPECTS OF CHILDREN'S BEHAVIOR (Continued)

B. CLASSROOM DYNAMICS (Continued)

Learning Environment

- Uninvolved (-.37)
- Stress (-.36)

Individualizing

- Stress (-.34)

C. CAREGIVER BEHAVIOR

Attentive and Encouraging

- Stress (-.45)

Harsh and Critical

- Stress (.50)

OH#7
C. CAREGIVER BEHAVIOR ASSOCIATED WITH CHILDREN'S BEHAVIOR (Continued)

Detached

- Stress (.46)
- Uninvolved (.32)

Controlling

- Fighting (.42)
- Crying (.30)

Disciplining

- Fighting (.45)

Comforting

- Crying (.48)